

# SET SERIES FILTERS – MEDIUM PRESSURE

## LF Set Series

Manifold Cartridge Filters

1500 psi • up to 180 gpm



Manifold cavity is only for representation and not HYDAC's scope of supply

### Features

- Non-welded housing design reduces stress concentrations and prevents fatigue failure.
- Aluminum alloy is water tolerant - anodization is not required for water based fluids (HWBF).
- O-ring seals are used to provide positive, reliable sealing. Choice of O-ring materials (*nitrile rubber, fluorocarbon elastomer, ethylene propylene rubber*) provides compatibility with petroleum oils, synthetic fluids, water-glycols, oil/water emulsions, and high water based fluids.
- Screw-in bowl requires minimal clearance to remove the element for replacement, and contaminated fluid cannot be washed downstream when element is serviced.
- HYDAC differential Pressure Indicators (*optional*) have no external dynamic seal. This results in a high system reliability due to magnetic actuation, thus eliminating a potential leak point.
- For special finishes and coatings – consult HYDAC for minimum quantities, availability and pricing.

### Applications



Agricultural



Automotive



Construction



Industrial



Railways



Steel / Heavy Industry

### Installation

The LF Set Manifold Cartridge Filter is installed into a threaded cavity that is machined in the manifold (*manifold not included - see cavity drawing*). A bushing is provided for proper element installation, as well as a bowl with o-ring seal and back-up ring. An element can be provided as a option. The bushing holds the element in place during filtration operation, and facilitates easy removal for element change out.

More than one SET may be installed in the manifold if required for capacity. A differential pressure clogging indicator, to warn of high upstream pressure (*element clogged*), can be attached to the manifold as well (*cavity drawings for that upon request*). For additional information, contact HYDAC.

### Technical Specifications

<b>Mounting Method</b>	Threaded bowl
<b>Flow Direction</b> Element	Out-to-in
<b>Construction Materials</b> Bowl	Aluminum Extrusion ( <i>sizes 30 - 660</i> ) Steel ( <i>size 280</i> )
<b>Flow Capacity</b>	
30	8 gpm (30 lpm)
60	16 gpm (60 lpm)
110	29 gpm (110 lpm)
160	42 gpm (160 lpm)
240	63 gpm (240 lpm)
280	74 gpm (280 lpm)
330	84 gpm (330 lpm)
660	174 gpm (660 lpm)
<b>Housing Pressure Rating</b>	
Max. Operating Pressure	1500 psi (100 bar)
Fatigue Pressure	1500 psi (100 bar)
Burst Pressure	size 30 5510 psi (380bar) sizes 60 - 660 > 6090 psi (420 bar)
<b>Element Collapse Pressure Rating</b> ( <i>optional</i> )	
BH4HC, V	3045 psid (210 bar)
ON, W/HC	290 psid (20 bar)
<b>Fluid Temperature Range</b>	-22°F to 212°F (-30°C to 100°C) Consult HYDAC for applications operating below -22°F (-30°C)
<b>Fluid Compatibility</b>	Compatible with all hydrocarbon based, synthetic, water glycol, oil/water emulsion, and high water based fluids when the appropriate seals are selected
<b>ΔP Indicator Trip Pressure</b> ( <i>optional</i> )	
ΔP = 29 psid (2 bar)	-10%
ΔP = 72 psid (5 bar)	-10%

## Model Code

		<b>LF</b>	<b>ON</b>	<b>30</b>	<b>SET</b>	<b>3</b>	<b>W</b>	<b>1</b>	<b>.</b>	<b>0</b>	<b>/</b>	
<b>Filter Type</b>												
LF	= Manifold cartridge filter											
<b>Element Media</b>												
(omit)	= Without element											
ON	= Optimicron® (low collapse)											
BH/HC	= Betamicron® (High Collapse)											
W/HC	= Wire Mesh											
V	= Metal Fiber											
<b>Size</b>												
30, 60, 110, 160, 240, 280, 330, 660												
<b>Type of Mounting</b>												
SET	= Manifold cartridge											
<b>Filtration Rating (microns)</b>												
XX	= Without element											
1, 3, 5, 10, 15, 20	= ON											
3, 5, 10, 20	= BH/HC											
25, 50, 100, 200	= W/HC											
3, 5, 10, 20	= V											
<b>Type of ΔP Clogging Indicator</b>												
W	= Without indicator (Indicators can be installed in manifold, cavity drawing upon request). (For additional details and options, see Clogging Indicators section.)											
<b>Type Number</b>												
1	= Sizes 30 to 660											
<b>Modification Number (latest version always supplied)</b>												
<b>Seals</b>												
(omit)	= Nitrile rubber (NBR) (standard)											
V	= Fluorocarbon elastomer (FKM)											
EPR	= Ethylene propylene rubber (EPR)											
<b>Supplementary Details</b>												
SO263	= Modification of elements for Skydrol or HYJET phosphate ester fluids											
SO184	= G-1/2 Drain in Bowl Option For Sizes 60 - 280 (comes standard for sizes 330, 660)											
W	= Modification of "V" elements for use with oil water emulsions (HFA) and water polymer solutions (HFC)											
SFREE	= Element specially designed to minimize electrostatic charge generation											
SO882	= Quality Protection											
SO376	= Modification of ON and W/HC elements for HFA, HFB, HFC, and HFD flame retardant liquids											

## Replacement Element Model Code

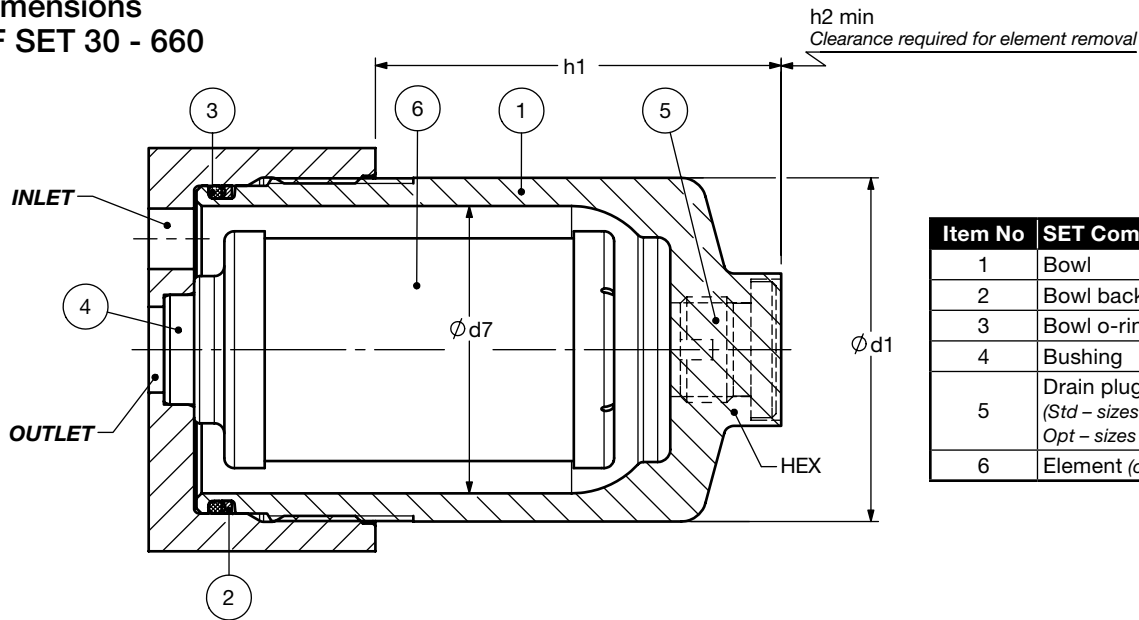
			<b>0030</b>	<b>D</b>	<b>003</b>	<b>ON</b>	<b>/</b>	<b>V</b>
<b>Size</b>								
0030, 0060, 0110, 0160, 0240, 0280, 0330, 0660								
<b>Filtration Rating (micron)</b>								
1, 3, 5, 10, 15, 20	= ON							
3, 5, 10, 20	= BH/HC							
25, 50, 100, 200	= W/HC							
3, 5, 10, 20	= V							
<b>Element Media</b>								
ON, BH4HC, W/HC, V								
<b>Seals</b>								
(omit)	= Nitrile rubber (NBR)							
V	= Fluorocarbon elastomer (FKM)							
EPR	= Ethylene propylene rubber (EPR)							
<b>Supplementary Details</b>								
SO263	= (same as above)							
W	= (same as above)							
SFREE	= Element specially designed to minimize electrostatic charge generation							
SO882	= Quality Protection							
SO376	= (same as above)							

Model Codes Containing RED are non-stock items — Minimum quantities may apply — Contact HYDAC for information and availability

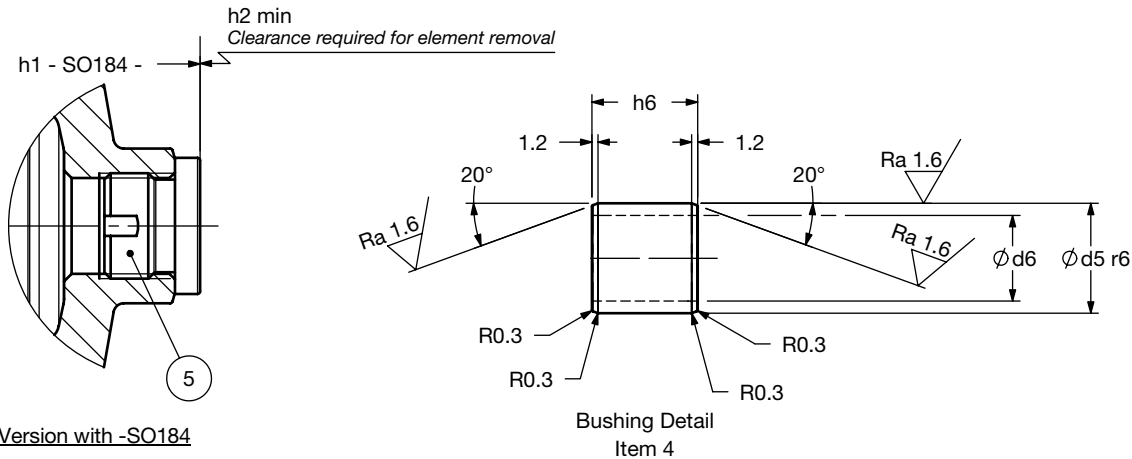
# SET SERIES FILTERS – MEDIUM PRESSURE

## Dimensions

### LF SET 30 - 660



Item No	SET Components
1	Bowl
2	Bowl back-up ring
3	Bowl o-ring
4	Bushing
5	Drain plug (Std - sizes 330/660, Opt - sizes 60-280 - use code SO184)
6	Element (optional)



Version with -SO184

Size	d1	d2	d3	d4	d5	d6	d7	d8	d9	h1	h1 -SO184	h2	h3	h4	h5	h6	h7	h8	h9	HEX
30	52	52	M55x1.5	11.9	11.9	8	44	56	55.2	77.5	80.5	75	33	31	23	18	6	4	5	24
60	68	65	M68x2	21.8	21.8	17	57	69	68.3	82.5	86.5	75	36	34	25.5	21	6	4	5	27
110	68	65	M68x2	21.8	21.8	17	57	69	68.3	150	154	75	36	34	25.5	21	6	4	5	27
160	95	88	M95x2	33.8	33.8	26	78	96	95.3	113.5	117.5	95	47	45	35	25	8	5	7	32
240	95	88	M95x2	33.8	33.8	26	78	96	95.3	173.5	177.5	95	47	45	35	25	8	5	7	32
280	95	88	M95x2	33.8	33.8	26	78	96	95.3	358.7	362.7	95	47	45	35	25	8	5	7	32
330	130	125	M130x2	47.8	47.8	36	110	131	130.3	165.5	-	105	55	52	41.6	26	10	6	9	36
660	130	125	M130x2	47.8	47.8	36	110	131	130.3	336.5	-	105	55	52	41.6	26	10	6	9	36

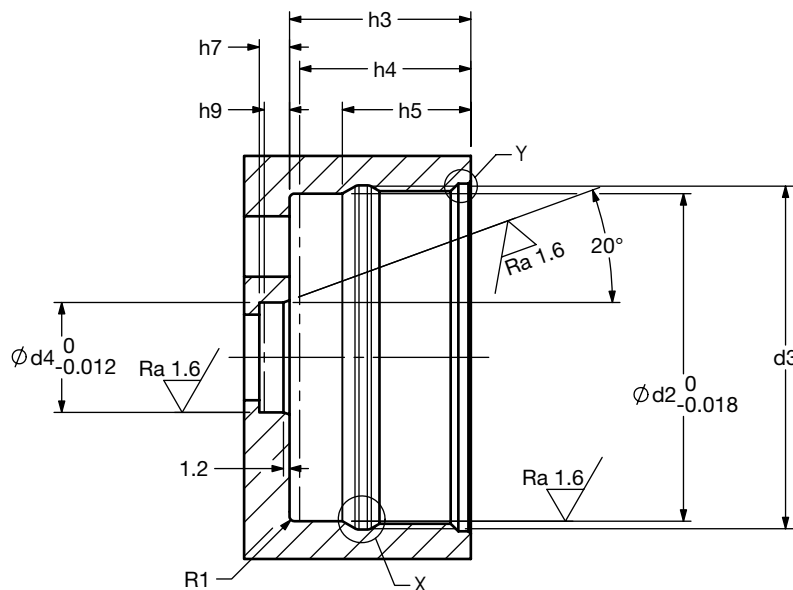
## Unspecified Tolerances

From	0.5	3	6	30	120
To	3	6	30	120	400
	±0.1	±0.1	±0.2	±0.3	±0.5

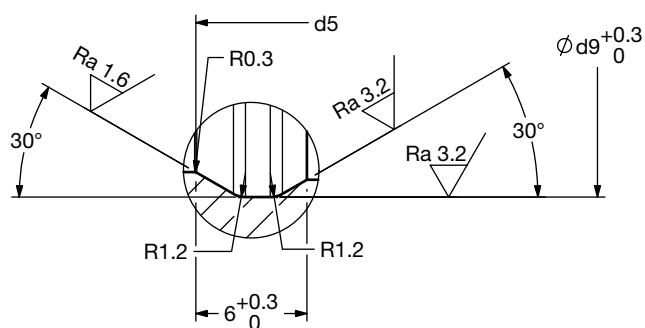
Size	30	60	110	160	240	280	330	660
Weight (lbs.)	0.7	1.2	1.8	3.2	4	21.4	7.5	13.2

Dimensions shown are millimeters for general information and overall envelope size only. Weights listed include element.  
For complete dimensions please contact HYDAC to request a certified print.

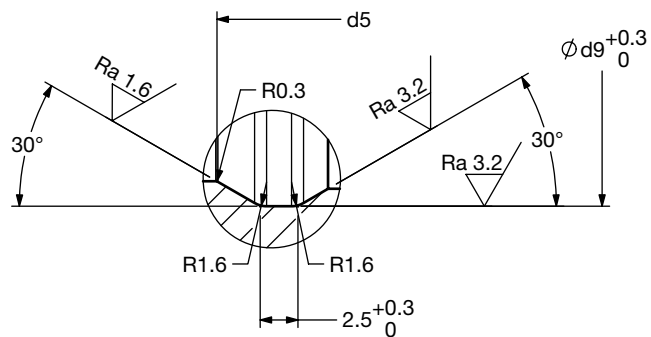
## Customer Manifold Machining LF SET 30 - 660



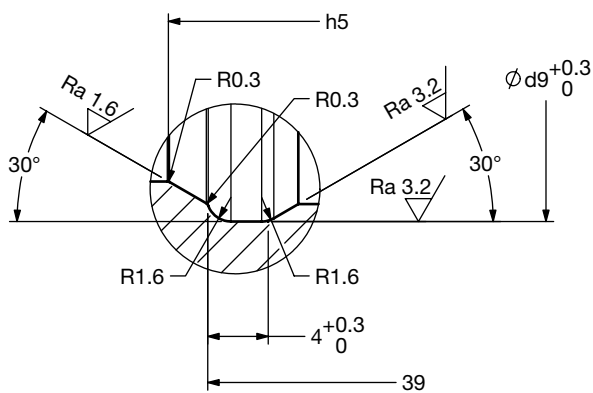
MANIFOLD MACHINING



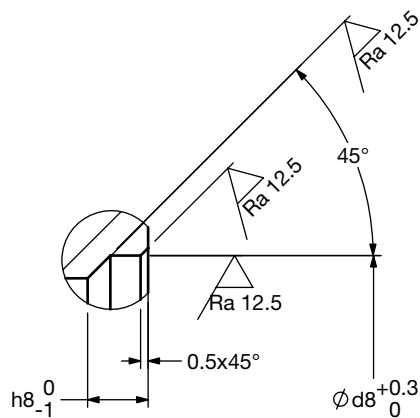
DETAIL X ( SIZE 30 )



DETAIL X ( SIZE 60-240 )



DETAIL X ( SIZE 330 / 660 )



DETAIL Y

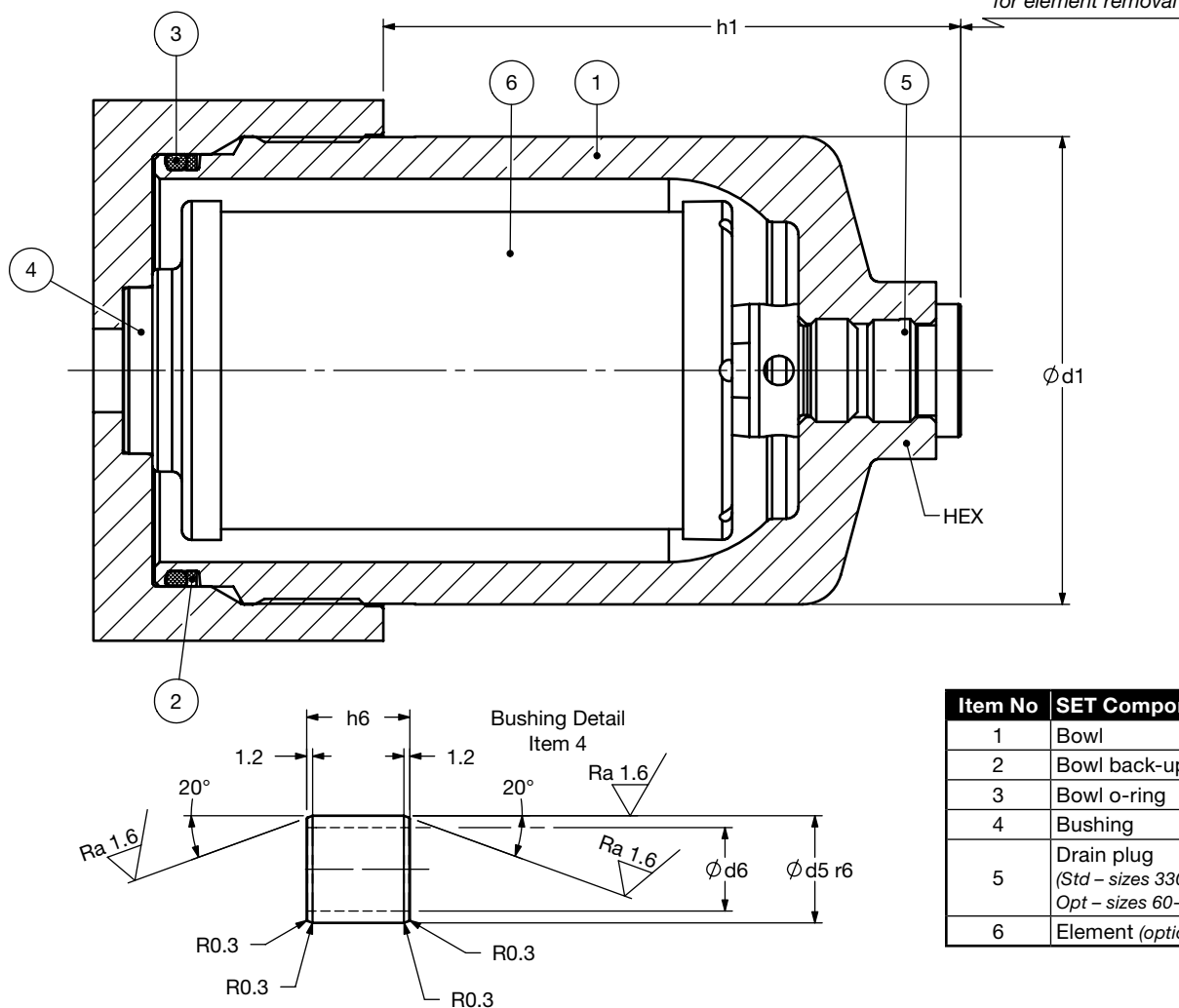
## SET SERIES FILTERS – MEDIUM PRESSURE

## Dimensions

# LF SET SO882 30 - 660

## *h2 min*

*Clearance required  
for element removal*



Item No	SET Components
1	Bowl
2	Bowl back-up ring
3	Bowl o-ring
4	Bushing
5	Drain plug (Std – sizes 330/660, Opt – sizes 60-280 - use code SO184)
6	Element (optional)

Size	d1	d2	d3	d4	d5	d6	d7	d8	d9	h1	h2	h3	h4	h5	h6	h7	h8	h9	HEX
30	52	52	M55x1.5	11.9	11.9	8	44	56	55.2	80.5	75	33	31	23	18	6	4	5	24
60	68	65	M68x2	21.8	21.8	17	57	69	68.3	86.5	75	36	34	25.5	21	6	4	5	27
110	68	65	M68x2	21.8	21.8	17	57	69	68.3	154	75	36	34	25.5	21	6	4	5	27
160	95	88	M95x2	33.8	33.8	26	78	96	95.3	117.5	95	47	45	35	25	8	5	7	32
240	95	88	M95x2	33.8	33.8	26	78	96	95.3	177.5	95	47	45	35	25	8	5	7	32
280	95	88	M95x2	33.8	33.8	26	78	96	95.3	362.7	95	47	45	35	25	8	5	7	32
330	130	125	M130x2	47.8	47.8	36	110	131	130.3	165.5	105	55	52	41.6	26	10	6	9	36
660	130	125	M130x2	47.8	47.8	36	110	131	130.3	336.5	105	55	52	41.6	26	10	6	9	36

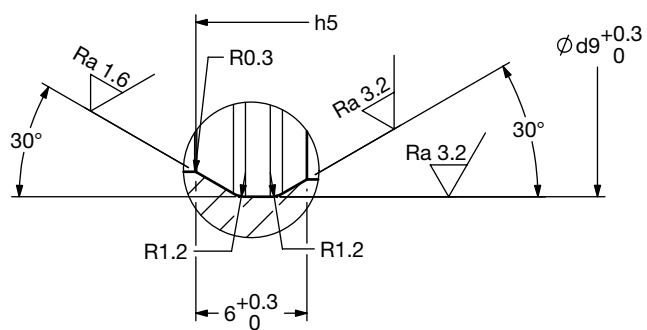
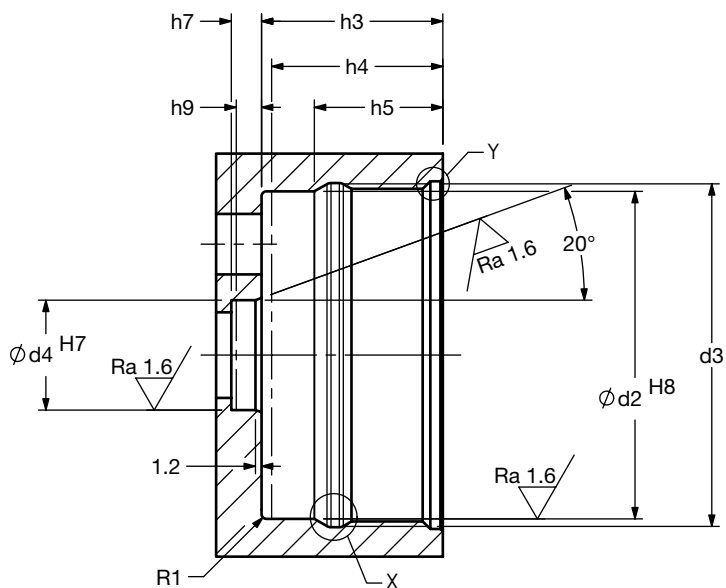
## Unspecified Tolerances

<b>From</b>	0.5	3	6	30	120
<b>To</b>	3	6	30	120	400
	<b>±0.1</b>	<b>±0.1</b>	<b>±0.2</b>	<b>±0.3</b>	<b>±0.5</b>

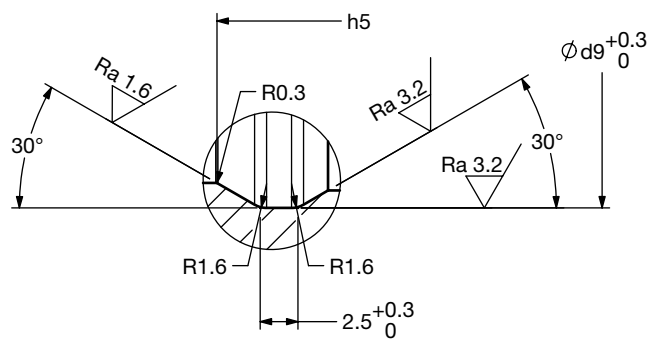
Size	30	60	110	160	240	280	330	660
Weight (lbs.)	1.9	2.4	3	3.2	4	21.4	8.8	14.5

Dimensions shown are millimeters for general information and overall envelope size only. Weights listed include element. For complete dimensions please contact HYDAC to request a certified print.

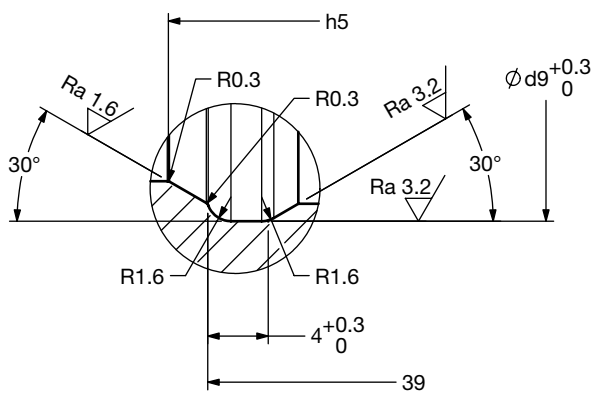
## Customer Manifold Machining LF SET SO882 30 - 660



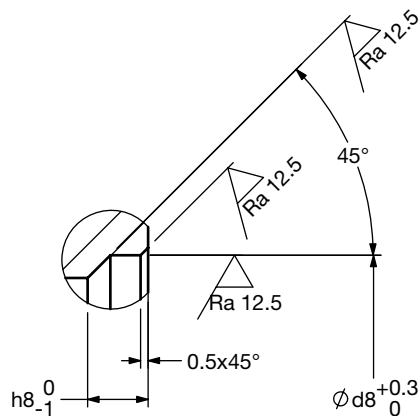
Detail X (SIZE 30)



Detail X (SIZE 60-240)



Detail X (SIZE 330 / 660)



Detail Y

# SET SERIES FILTERS – MEDIUM PRESSURE

## Element K Factors

$$\Delta P \text{ Elements} = \text{Elements (K) Flow Factor} \times \text{Flow Rate (gpm)} \times \frac{\text{Actual Viscosity (SUS)}}{141 \text{ SUS}} \times \frac{\text{Actual Specific Gravity}}{0.86}$$

(From Tables Below)

"ON" Pressure Elements:	...D...ON (Optimicron Pressure Elements)					
Size	1 µm	3 µm	5 µm	10 µm	15 µm	20 µm
0030 D XXX ON	4.27	3.507	2.376	1.251	0.768	0.62
0060 D XXX ON	2.936	1.427	1.004	0.664	0.537	0.347
0110 D XXX ON	1.416	0.735	0.527	0.333	0.254	0.164
0160 D XXX ON	1.015	0.604	0.423	0.225	0.204	0.175
0240 D XXX ON	0.631	0.379	0.293	0.175	0.134	0.115
0280 D XXX ON	0.304	0.185	0.15	0.082	0.075	0.064
0330 D XXX ON	0.452	0.23	0.185	0.135	0.085	0.067
0660 D XXX ON	0.207	0.106	0.086	0.051	0.039	0.031

"D" Pressure Elements	...D...BH4HC (Betamicron High Collapse)			
Size	3 µm	5 µm	10 µm	20 µm
0030 D XXX BH4HC	5.005	2.782	1.992	1.043
0060 D XXX BH4HC	3.216	1.789	0.993	0.670
0110 D XXX BH4HC	1.394	0.818	0.489	0.307
0160 D XXX BH4HC	0.922	0.571	0.324	0.241
0240 D XXX BH4HC	0.582	0.373	0.214	0.159
0280 D XXX BH4HC	0.313	0.187	0.099	0.088
0330 D XXX BH4HC	0.423	0.247	0.154	0.110
0660 D XXX BH4HC	0.181	0.104	0.055	0.049

Wire Mesh	...D...W/HC Elements (Low Collapse)
Size	25, 50, 100, 200 µm
0030 D XXX W/HC	0.166
0060 D XXX W/HC	0.042
0110 D XXX W/HC	0.023
0160 D XXX W/HC	0.016
0240 D XXX W/HC	0.010
0280 D XXX W/HC	0.005
0330 D XXX W/HC	0.008
0660 D XXX W/HC	0.004

All Element K Factors in psi / gpm.

